

Environmental Protection Agency

§91.117

unique engine identification number permanently affixed to or engraved on the engine.

§91.114 Requirement of certification—supplying production engines upon request.

Upon the Administrator's request, the manufacturer must supply a reasonable number of production engines for testing and evaluation. These engines must be representative of typical production and supplied for testing at such time and place and for such reasonable periods as the Administrator may require.

§91.115 Certification procedure—determining engine power and engine families.

(a) Engine power must be calculated using SAE J1228. This procedure has been incorporated by reference. See §91.6.

(b) The manufacturer's product line must be divided into engine families as specified by paragraph (c) of this section, comprised of engines expected to have similar emission characteristics throughout their useful life periods.

(c) To be classed in the same engine family, engines must be identical in all of the following applicable respects:

- (1) The combustion cycle;
 - (2) The cooling mechanism;
 - (3) The cylinder configuration (inline, vee, opposed, bore spacings, and so forth);
 - (4) The number of cylinders;
 - (5) The number of catalytic converters, location; volume, and composition; and
 - (6) The thermal reactor characteristics.
- (d) At the manufacturer's request, engines identical in all the respects listed in paragraph (c) of this section may be further divided into different engine families if the Administrator determines that they may be expected to have different emission characteristics. This determination is based upon the consideration of features such as:
- (1) The bore and stroke;
 - (2) The combustion chamber configuration;
 - (3) The intake and exhaust timing method of actuation (poppet valve, reed valve, rotary valve, and so forth);

(4) The intake and exhaust valve or port sizes, as applicable;

(5) The fuel system;

(6) The exhaust system; and

(7) The method of air aspiration.

(e) Where engines are of a type which cannot be divided into engine families based upon the criteria listed in paragraph (c) of this section, the Administrator shall establish families for those engines based upon the features most related to their emission characteristics.

(f) Upon a showing by the manufacturer that the emission characteristics during the useful life are expected to be similar, engines differing in one or more of the characteristics in paragraph (c) of this section may be grouped in the same engine family.

(g) Upon a showing by the manufacturer that the emission characteristics during the useful life are expected to be dissimilar, engines identical in all the characteristics in paragraph (c) of this section may be divided into separate engine families.

§91.116 Certification procedure—test engine selection.

(a) The manufacturer must select, from each engine family, a test engine of a configuration that the manufacturer deems to be most likely to exceed the Family Emission Limit (FEL).

(b) At the manufacturer's option, the criterion for selecting the worst case engine may be that engine configuration which has the highest weighted brake-specific fuel consumption over the appropriate engine test cycle.

(c) The test engine must be constructed to be representative of production engines.

§91.117 Certification procedure—service accumulation.

(a)(1) Any engine required to be tested under §91.118 must be operated with all emission control systems operating properly for a period sufficient to stabilize emissions prior to such testing.

(2) A manufacturer may elect to consider emission levels as stabilized when the test engine has accumulated 12 hours of service.

(b) No maintenance, other than recommended lubrication and filter changes, may be performed during